

Claims

1. Sleeper (1) for a gravel-mounted structure on railways, which has a cross member (4) extending along a sleeper longitudinal axis (6) and two longitudinal members (5) spaced apart from one another by means of the cross member (4), and each longitudinal member (5) has a bearing (9) on a top face for mounting a rail element (10) extending above the longitudinal member (5) and each longitudinal member (5) has one or more mounting devices (26) for each rail fixing element (28) in order to retain a rail element (10) on the longitudinal member (5), characterised in that at least one of the mounting devices (26) on at least one of the two longitudinal members (5) is disposed transversely offset with respect to the sleeper longitudinal axis (6).
2. Sleeper as claimed in claim 1, characterised in that the at least one mounting device (26) is eccentrically disposed on the respective longitudinal member (5) within a sleeper width (14b).
3. Sleeper as claimed in claim 1 or 2, characterised in that at least two mounting devices (26) are offset from one another parallel with the extension of the sleeper longitudinal axis (6).
4. Sleeper as claimed in one of the preceding claims, characterised in that the bearings (9) extend on the longitudinal members (5) along a rail extension, in particular along a longitudinal mid-axis (8) of the longitudinal member (5), and at least one mounting device (26) each is disposed adjacent to the bearing (9) on oppositely lying sides (31, 32).
5. Sleeper as claimed in one of the preceding claims, characterised in that on every side (31, 32) lying adjacent to the longitudinal mid-axis (8) of the longitudinal member (5), in particular the side (31) facing the cross member (4) and the side (32) remote from it, respectively three, two or one mounting device(s) (26) is (are) provided in each case.
6. Sleeper as claimed in one of the preceding claims, characterised in that the mounting devices (26) can be activated or deactivated as and when necessary, in particular transferred into a passive position or mounting position in order to mount the rail fixing elements (28).

7. Sleeper as claimed in one of the preceding claims, characterised in that the mounting devices (26) are each provided in the form of an anchoring orifice (40) and optionally a mounting channel (41) or a portion of a mounting channel (41).
8. Sleeper as claimed in claim 7, characterised in that the anchoring orifice (40) is designed so that it can be closed by means of a closure element (66) in order to deactivate the mounting devices (26), in particular a plug (68) of plastic.
9. Sleeper as claimed in one of the preceding claims, characterised in that, in a first mounting position on each side (31, 32) lying adjacent to the longitudinal mid-axis (8) of the longitudinal member (5), a rail fixing element (28) each is secured in a mounting device (26).
10. Sleeper as claimed in claim 9, characterised in that on both sides (31, 32) adjacent to the longitudinal mid-axis (8) of the longitudinal member (5), the mounting devices (26) with the rail fixing elements (28) are spaced apart from the sleeper longitudinal axis (6) in opposite directions from one another by a distance (29).
11. Sleeper as claimed in one of the preceding claims, characterised in that the mounting devices (26) with the rail fixing elements (28) are disposed diagonally opposite one another.
12. Sleeper as claimed in one of the preceding claims, characterised in that in a second mounting position on a side (31; 32) lying adjacent to the longitudinal mid-axis (8) of the longitudinal member (5), a rail fixing element (28) each is secured to two mounting devices (26) and a rail fixing element (28) is secured to only one mounting device (26) on the other side (31; 32).
13. Sleeper as claimed in claim 12, characterised in that on the side (31; 32) of the longitudinal member (5) with a rail fixing element (28) secured to only one mounting device (26), the mounting device (26) is disposed between the two mounting devices (26) of the oppositely lying side (31; 32) of the longitudinal member (5), in particular in the region of the sleeper longitudinal axis (6).
14. Sleeper as claimed in one of claims 12 or 13, characterised in that on the side (31; 32)

of the longitudinal member (5) with a rail fixing element (28) each fixed to the two mounting devices (26), these mounting devices (26) are spaced apart from the sleeper longitudinal axis (6) in opposite directions respectively by an identical or different distance (29).

15. Sleeper as claimed in one of the preceding claims, characterised in that in a third mounting position, two respective rail fixing elements (28) are secured to mounting devices (26) on each side (31, 32) adjacent to the longitudinal mid-axis (8) of the longitudinal member (5).

16. Sleeper as claimed in one of the preceding claims, characterised in that the two longitudinal members (5) spaced apart by the cross member (4) have a different number and/or layout or distribution of mounting devices (26) with the rail fixing elements (28).

17. Sleeper (1) for a gravel-mounted structure in railways, has a cross member (4) extending along a sleeper longitudinal axis (6) and two longitudinal members (5) spaced apart from one another by the cross member (4), and each of the longitudinal members (5) has a bearing (9) on a top face for mounting a rail element (10) above the longitudinal member (5), characterised in that the longitudinal members (5) are each of a stepped or recessed design in the direction of a sleeper bottom face (23) at their top face on at least one end region (45a, 45b) lying opposite the sleeper longitudinal axis (6).

18. Sleeper as claimed in claim 17, characterised in that a respective step (47a, 47b) is formed by the stepped or recessed end regions (45a, 45b) on the longitudinal projections, and the steps (47a, 47b) each have a shoulder surface (54) remote from the sleeper bottom face (2).

19. Sleeper as claimed in claim 18, characterised in that the shoulder surface (54) is spaced apart from a support surface (33) on the top face of the longitudinal member (5) by a height (50) in the direction of the sleeper bottom face (2).

20. Sleeper as claimed in claim 18 or 19, characterised in that the shoulder surface (54) of the step (47a, 47b) is essentially of a rectangular or elliptical shape.

21. Sleeper as claimed in one of claims 17 to 20, characterised in that a step width (52) of the steps (47a, 47b) respectively corresponds to at least a bearing width (35) for the rail elements (10) on the bearing (9).

22. Sleeper as claimed in one of the preceding claims, characterised in that the mounting channels (41) of the mounting devices (26) are each provided in the form of a recess in the support surface (33) of the longitudinal member (5).

23. Sleeper as claimed in claim 22, characterised in that the mounting channels (41) extend continuously or are split into part sections across the support surface (33), in particular across a bearing length (37) adjacent to the corresponding bearing (9), parallel with the rail extension or the longitudinal mid-axis (8) of the longitudinal member (5).

24. Sleeper as claimed in one of claims 22 or 23, characterised in that the mounting channels (41) of the mounting devices (26) project beyond the cross member (4) by means of a protuberance (44).

25. Sleeper as claimed in one of the preceding claims, characterised in that a width of the longitudinal member (5) in the region of the support surface (33) corresponds to at least a channel distance (53) between the mounting channels (41) at the oppositely lying sides (31, 32).

26. Sleeper as claimed in one of the preceding claims, characterised in that the bearing (9) extends continuously on the respective longitudinal member (5) between step edges (49) formed in the stepped region of the longitudinal member (5).